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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/762,607

01/22/2004

Michael Holz

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EXAMINER

TSAI, TSUNG YIN

ART UNIT

PAPER NUMBER

2609

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/06/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/762,607	HOLZ ET AL.	
	Examiner	Art Unit	
	Tsung-Yin Tsai	2609	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☒ Claim(s) 1-13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/22/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: _____ |

Continuation of Attachment(s) 3. Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :1/22/2004, 4/23/2004, 8/18/2005.

DETAILED ACTION

Information Disclosure

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Objection

2. Claims 1-13 are objected to because of the following informalities:

(1) Claim 1, page 9 line 3, change "a portion of a first image" to "a portion of the first image."

(2) Claim 1, page 9 line 5, change "at least a portion of a second image recorded" to "at least a portion of the second image recorded".

(3) Claim 10, page 10 line 3, change "at least a portion of a first image, and" to "at least a portion of the first image, and".

(4) Claim 10, page 10 line 5, change "at least a portion of a second image recorded" to "at least a portion of the second image recorded".

Claim rejection – 35 USC 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-8 and 10-13 are rejected under 35 U.S.C. 102(b) as being unpatentable over Stam et al (US Patent Number 5,923,027).

Stam et al disclose the following method and a device that carries on the method:

(1) Regarding claim 1:

A method for vision enhancement in a motor vehicle (figure 5, column 2 lines 44-58.), comprising:

recording a first image data of a first image area, the first image area representing at least a portion of a first image (46-48 figure 5, column 6 lines 41-48, column 8 lines 24-26);

recording second image data of a second image area, the second image area representing at least one of a portion of the first image and at least a portion of a second image recorded at a different point in time (figure 5, column 9 lines 30-40);

comparing the first set of image data with the second set of image data so as to determine a weather situation (figure 4a, figure 4b, column 5 lines 25-35, column 10 lines 30-37, column 10 lines 60-67 to column 11 lines 1-15. The fog detector show that a first and second picture taken with the turning off and on of

the LED. The differences between the images are use for spot detection. This is seen as compare two images.).

(2) Regarding claim 2:

wherein the comparing is performed using an index of a sharpness of at least one of the first and second images (column 1 lines 45-53, column 2 lines 62-67 to column 3 lines 1-5, column 5 lines 25-35, column 6 lines 23-30. The CCD image sensor takes and computes the sum of the difference. This is seen as comparing sharpness of the two images. The grey scale that is computed is seen as the index of sharpness which is use to compare the images.).

(3) Regarding claim 3:

further comprising comparing a difference between an intensity of a first pixel with an intensity of at least one of an adjacent and a surrounding pixel (figure 4a, figure 4b, figure 5, column 3 lines 30-34, column 6 lines 40-47, column 8 lines 18-64, column 9 lines 20-30. Pixel intensity is created after the CCD image sensor takes the image. Laplacian functions will be perform on each of these pixels and the value of these pixels will be compare to a user set limit or threshold. The amount of difference that will be computed will determine if action(s) will be taken by one of the vehicle components. Column 10 lines 60-67 to column 11 lines 1-15. The images taken from inside and the outside of the windshield are seen as adjacent. The function of detecting fog is the determination if there is a blur.).

(4) Regarding claim 4:

determining a variation of at least one of the first and second image data over time so as to determine an intensity of a precipitation (figure 5, column 1 lines 15-22, column 6 lines 23-33. The action of wiping is use as a time delay between images. The image before the wiper is compare with image after the wiper. In this way intensity of precipitation or moisture will be measure to see if further action will be taken by the any of the vehicle component.).

(5) Regarding claim 5:

controlling at least one vehicle component using the index (40-42 figure 6; figure 6, column 1 lines 26-29, column 11 lines 25-30.).

(6) Regarding claim 6:

selecting a parameter for image processing using the index (50-52 figure 5, column 8 lines 44-60, column 11 lines 35-38, column 14 lines 20-25, column 15 lines 8-12. Thresholds are the parameter that can be set by the user or just preset. This parameter will be what the gray scale or index will be compare to in order to see if any action should be taken by any vehicle component.).

(7) Regarding claim 7:

further comprising determining the index using at least one of the first and second image data, wherein the first and second image data are recorded within a predetermined time period (abstract, column 2 lines 60-57 to column 3 lines 1-5, figure 5, column 1 lines 15-22, column 6 lines 23-33. Gray scale is seen as the index. The development of the index is created from the image array sensor, such as a CMOS active pixel sensor. The voltage of each of the pixels, which

represent the illumination level, is converted to a corresponding gray scale value. This is seen as determination of the index from the images, which are composed of pixels capture. The action of wiping is use as a time delay between images, where the wipe timing can be predetermine by the user. The image before the wiper is compare with image after the wiper. In this way intensity of precipitation or moisture will be measure to see if further action will be taken by the any of the vehicle component.).

(8) Regarding claim 8:

wherein at least one of the first and second image data is recorded after an action of the vehicle, and further comprising determining the index using at least one of the first and second image data (figure 5. 46 show the show the first image taken before the activation of the wiper. 54 show that activation of the wiper where the condition are reach of the wiper to be turn on. 64 show that another image is taken after the wiper and store for calibration. Calibration is seen as further comprising determination of the index/gray scale).

(9) Regarding claim 10:

A device (figure 1, figure 2, figure 3, figure 6) for vision enhancement in a motor vehicle, comprising:

an image-recording device (figure 1, figure 2, figure 3, 32 figure 6, column 4 lines 51-60) configured to record a first image data of a first image area, the first image area representing at least a portion of a first image (46-48 figure 5, column 6 lines 41-48. First image is recorded.), and to record a second image

data of a second image area, the second image area representing at least one of a portion of the first image (figure 5, column 9 lines 30-40) and at least a portion of a second image recorded at a difference point in time (figure 5. 46 show the show the first image taken before the activation of the wiper. 54 show that activation of the wiper where the condition are reach of the wiper to be turn on. 64 show that another image, the second image, is taken after the wiper and store for calibration. The second image is take after the wiper, thus a different point in time.); and

an analyzer device (figure 6, column 4 lines 53-60, column 6 lines 10-21. A microcontroller 38 is show to process the different regions of the image. This is seen as the analyzer device) configured to compare the first image data with the second image data so as to determine a weather situation (figure 4a, figure 4b, column 5 lines 25-35, Column 10 lines 60-67 to column 11 lines 1-15. The images taken from inside and the outside of the windshield are seen as adjacent. The function of detecting fog is the determination if there is a blur is seen as image comparison.).

(10) Regarding claim 11:

wherein the image-recording device is an infrared camera (figure 1, figure 2, figure 3, figure 6, column 9 lines 60-67, column 10 lines 20-30. The image – recording device also functions as an infrared camera. The camera that is described can also detect the wavelength of the infrared signal.).

(11) Regarding claim 12:

a radiation source to at least partially illuminate a field detected by the image-recording device (column 4 lines 53-58, column 9 lines 60-67, column 10 lines 20-30. The radiation source is able to detect the visible spectrum as well as the infrared spectrum.).

(12) Regarding claim 13:

the radiation source emits infrared radiation (column 4 lines 53-58, column 9 lines 60-67, column 10 lines 20-30. A radiating infrared source is preferable since they are not visible to the human eye and therefor so not pose distraction.).

Claim rejection – 35 USC 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stam el at (US Patent Number 5,923,027) in view of Holz et al (US Patent Number 7,015,944).

Stam el at disclose all the following above except the following:

(1) Regarding claim 9:

presenting a user with at least one of a piece of information and an instruction as a function of the index.

Holz et al, in the same field of endeavor, disclose the presentation of the data to the user/driver (abstract, column 1 lines 45-48, column 5 lines 15-20). Stam el at on the

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other hand disclose as a part of the system where the user/driver can have input into the device in teaching (44 figure 6 show that driver having a on/off input option for the sensitivity control of the system.).

It would be obvious to the one of ordinary skill in the art at the time of the invention to apply Holz et al teachings to Stam el at so that it can present the data collected from the system to the user, so that the user can better make decision as what they would want the system to do. Holz et al teaches Stam el at of the invention to combine the function of data presentation to the user, in whatever format that can be easily understood by the user, which may be index or gray scale, with the controls to the user so the system will be much more adaptable for each different user's preference and to the changing environment that is it design to detect.

Conclusion

6. The prior art made of record and not relied upon as consider pertinent to applicant's disclosure.

Holz et al (US PGPUB 20040161159) disclose a vision-enhancing device for a motor vehicle has an image-recording device, an image-processing device and an image-display device, the image-processing device is configured to assign display color values for display by the image-display device to the input color values recorded by the image-recording device, certain display color values being provided for each input color value as a function of the environmental conditions.

Holz et al (US Patent Number 6,552,342) disclose a system for improving the visibility in vehicles, including the following: an illumination optical system (2) for continuous radiation of infrared pulsed light; an associated receiver optical system (3) for receiving reflected components of the radiated light; a display (4) for representing information obtained by the receiver optical system (3), and a device (5, 6) for determining the presence of glare in the receiver optical system (3) from a foreign vehicle illumination optical system and for changing the keying interval or duty cycle of the infrared pulsed light of the illumination optical system (2) driven with fixed keying interval in dependence upon the vehicle direction of travel in such a manner that the glare is eliminated. Therein the illumination optical system is driven with a fixed keying interval depending upon the vehicle direction of travel or, in certain cases, the direction of illumination. In an alternative embodiment, the illumination optical system (2) is operated at a wavelength which depends upon the vehicle direction of travel or, in certain cases, the direction of illumination.

Ockerse et al (US Patent Number 6,861,636) disclose a moisture sensing system of the present invention includes first and second sensor arrays, at least one optical system operative to image the same portion of the surface onto both of the sensor arrays, and a processing system in communication with the sensor arrays and operative to analyze images from the sensor arrays to detect moisture. The sensor arrays may be two-dimensional sensor arrays that are separate or different portions of the same sensor array. This system may be used to control the windshield wipers of a vehicle. The processing system may be configured to subtract an image obtained from the first

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sensor array from an image obtained from the second sensor array to distinguish between near field and far field objects.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tsung-Yin Tsai whose telephone number is (571) 270-1671. The examiner can normally be reached on Monday - Friday 8 am - 5 pm ESP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tsung-Yin Tsai
January 16, 2007



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SUPERVISORY PATENT EXAMINER